Work Order ID 105988

August-28-13 11:51:55 AM

105988

Item ID: 646.9711 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Blade

Start Date: 8/28/13 **Start Qty:** 14.00 *14*

Required Date: 8/28/13 **Req'd Qty:** 14.00 *14*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** MLS **Date:** 13-08-29 **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	**Revision Nbr**								
646.9700	B C 13.08.29.								
100	BAND SAW	0.00	DR/B.A 13/09/23			14	0		
100									
Bandsaw	**Memo**	0.00							
Jeaspa Bandsaw	Cut Blank at 4.625"								
110	HAAS CNC VERTICAL MACHINING #1	0.00	MH 13/09/25			14	4		
110			13-09-27						
HAAS 1	**Memo**	0.00							
HAAS CNC vertical machine #1	1-Machine per folio FB135 DWG REV: C FOLIO REV: AA								

2- deburr and break all sharp edges except otherwise noted

NCR: (Yes) / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: [signature] Date: 13/12/11

QA Closed [signature] Date: 13/12/16

Work Order: 105988

Part No. 646.9711

NCR No. B-3356

DISPOSITION

Rework	
Scrap	X
Use-as-is	
Work Order Update	

AGAINST DEPARTMENT/PROCESS

Skid-tube		Crosstube		Water Jet	Engineering
Machining	X	Small Fab		Prod. Eng. Coor.	Quality
Thermoforming		Finishing		Rec/Store/Packaging	Other
Large Fab		Composite		Supplier	

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data		13/09/25	110	04	Blade undersize on thickness.	DAS 16 9-89	Scrap & replace B 126 166	MH 13/09/25	DAS 40 9-89 13/10/12	DAS 16 9-89 Q>2042 13/12/11
Equip/Tooling						Q>2042 13/12/11				
Operator	X				2C. operator Error					
Material										
Setup										
Other										
Process										
Supplier										
Training										
Unapproved							$ 12.73			

FAULT CATEGORY

Landing Gear

- [ ] Bending
- [ ] Centre Not Concentric to O/S
- [ ] Cracks
- [ ] Crushed/Crimped
- [ ] Cuffs
- [ ] Heat Treat
- [ ] Inspection Strip in Tube
- [ ] Ripples in Bend
- [ ] Torque Waves in Extrusion
- [ ] Turning Sequence
- [ ] Wave/Twist in Tube

General

- [ ] Bend
- [ ] BOM/Route
- [ ] Broken/Damaged
- [ ] Burrs
- [ ] Contamination
- [ ] Countersink
- [ ] Cut Too Short
- [ ] Drill Holes
- [ ] Drawing
- [ ] Finish
- [ ] Folio
- [ ] Grain
- [ ] Hardware
- [ ] Inspection Incomplete
- [ ] Instructions Incomplete/Unclear
- [ ] Maintenance
- [ ] Mislabeled
- [ ] Misread
- [ ] Offset
- [ ] Out of Calibration
- [ ] Out of Sequence
- [ ] Outside Dimensions
- [ ] Ovalized
- [X] Over/Under tolerance
- [ ] Part Incorrect
- [ ] Part Lost/Missing
- [ ] Part Moved
- [ ] Positioned Wrong
- [ ] Power Loss/Surge
- [ ] Pressure/Forced
- [ ] Temperature/Cure
- [ ] Weld
- [ ] Wrong Stock Pulled
- [ ] Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Item ID: 646.9711 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID: **Stop** *NS2*
Item Name: Blade
Start Date: 8/28/13 **Start Qty:** 14.00 *14*
Required Date: 8/28/13 **Req'd Qty:** 14.00 *14*
Reference:
Cust Item ID:
Customer:

Run Start *NR1*
Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00				14	4		
120			13/09/25						
QC	Memo	0.00	13-09-27						
Quality Control									
130	QC8- Inspect parts - second check	0.00	DAS 40 9-89 13/10/02			14	4		
130									
QC	Memo	0.00							
Quality Control									
140	Outsource process - Heat Treat	0.00					13-10-2		
140									
Outsource1	Memo	0.00							
Outsource process - Heat Treat	HEAT TREAT AS PER DWG, SEE NOTE #3								
	ISSUE P/O: 21577								

DQA: _____ Date: _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Water Jet ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Engineering ☐
- Quality ☐
- Other ☐
- ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data										
Equip/Tooling										
Operator										
Material										
Setup										
Other										
Process										
Supplier										
Training										
Unapproved										

FAULT CATEGORY

Landing Gear

- ☐ Bending
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- ☐ Cracks
- ☐ Crushed/Crimped
- ☐ Cuffs
- ☐ Heat Treat
- ☐ Inspection Strip in Tube
- ☐ Ripples in Bend
- ☐ Torque Waves in Extrusion
- ☐ Turning Sequence
- ☐ Wave/Twist in Tube

General

- ☐ Bend
- ☐ BOM/Route
- ☐ Broken/Damaged
- ☐ Burrs
- ☐ Contamination
- ☐ Countersink
- ☐ Cut Too Short
- ☐ Drill Holes
- ☐ Drawing
- ☐ Finish
- ☐ Folio
- ☐ Grain
- ☐ Hardware
- ☐ Inspection Incomplete
- ☐ Instructions Incomplete/Unclear
- ☐ Maintenance
- ☐ Mislabeled
- ☐ Misread
- ☐ Offset
- ☐ Out of Calibration
- ☐ Out of Sequence
- ☐ Outside Dimensions
- ☐ Ovalized
- ☐ Over/Under tolerance
- ☐ Part Incorrect
- ☐ Part Lost/Missing
- ☐ Part Moved
- ☐ Positioned Wrong
- ☐ Power Loss/Surge
- ☐ Pressure/Forced
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other

_____

_____

_____

Work Order ID 105988

105988

August-28-13 11:51:55 AM

Item ID: 646.9711 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Blade

Start Date: 8/28/13 **Start Qty:** 14.00 *14*

Required Date: 8/28/13 **Req'd Qty:** 14.00 *14*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150						14			13/10/7
Packaging	**Memo**	0.00							
Packaging									
155	QC5- Inspect part completeness to step on W/O	0.00							
155						14			DAS 05 13·10·28
QC	**Memo**	0.00							
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
160						14	Ø	Ø	AS 13-12-7
SprayPaint	**Memo**	0.00							
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								
	PRIMER BATCH: 127401								

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Water Jet ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Engineering ☐
- Quality ☐
- Other ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

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- ☐ Wave/Twist in Tube

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- ☐ Contamination
- ☐ Countersink
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- ☐ Drill Holes
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- ☐ Folio
- ☐ Grain
- ☐ Hardware
- ☐ Inspection Incomplete
- ☐ Instructions Incomplete/Unclear
- ☐ Maintenance
- ☐ Mislabeled
- ☐ Misread
- ☐ Offset
- ☐ Out of Calibration
- ☐ Out of Sequence
- ☐ Outside Dimensions
- ☐ Ovalized
- ☐ Over/Under tolerance
- ☐ Part Incorrect
- ☐ Part Lost/Missing
- ☐ Part Moved
- ☐ Positioned Wrong
- ☐ Power Loss/Surge
- ☐ Pressure/Forced
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
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_____

_____

Item ID: 646.9711 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID: **Stop** *NS2*
Item Name: Blade

Start Date: 8/28/13 **Start Qty:** 14.00 *14*
Required Date: 8/28/13 **Req'd Qty:** 14.00 *14*
Reference:

Cust Item ID:
Customer:

Run Start *NR1*
Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	QC14- Inspect Spray Paint	0.00				14			13-12-09
170									
QC	**Memo**	0.00							
Quality Control									
180	Identify as per dwg & Stock Location: Composites (Finishing)	0.00				14			13-12-09
180									
Packaging	**Memo**	0.00							
Packaging									
190	QC21- Final Inspection - Work Order Release	0.00					13/12/13		
190									
QC	**Memo**	0.00							
Quality Control									

13/12/13

DQA: _____ Date: _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Water Jet ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Engineering ☐
- Quality ☐
- Other ☐
- ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

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- ☐ Other

_____

_____

_____

Picklist Print

August-28-13 11:51:55 AM

Work Order ID: 105988

Parent Item: 646.9711

Parent Item Name: Blade

Start Date: 8/28/13 **Required Date:** 8/28/13

Start Qty: 14.00 **Required Qty:** 14.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2-B0.500X1.250		Purchased	No			100	f	203.0150	**0.386**	**5.6884211**			
AISI A2 TOOL STEEL BAR, 0.500 X 1.250													

Location	Loc Qty	Loc Code
MAT009	203.0150001	
123250	0.0000001	
125350	0.5946	
M126166	78.6704	
M126438	123.75	

DR/D.A
13/09/23

5.6 ft. + 1.562 lf 13-09-26

DQA: _____ Date: _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Water Jet ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Engineering ☐
- Quality ☐
- Other ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

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- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other

_____

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_____

DART AEROSPACE LTD	Work Order:	105988
Description: Blade	Part Number:	646.9711
Inspection Dwg: 646.9700 Rev: B C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.340	+0.000/-0.005	.338	✓		MH-04	Caliper
Ø0.177	+0.005/-0.001	0.1785	✓			
3.200	+/-0.005	3.199	✓			
0.600	+/-0.005	.600	✓			
0.985	+/-0.005	.986	✓			
2.400	+/-0.005	2.400	✓			
1.200	+/-0.005	1.200	✓			
0.250	+/-0.005	.253	✓			
37.2°	0.5°	370	✓		Protractor	MH07
0.29 x 30°	+/-0.010 x 0.5°	0.29 x 30°	✓		1	1

Measured by:	MH [illegible]	Audited by:	DAS 40	Preliminary Approval:	
Date:	13-09-25	Date:	13/10/02 9-89	Date:	

Rev	Date	Change	Revised by	Approved
A	13.06.03	New Issue	KJ	
B	13.06.27	Dwg Rev updated	KJ	
C	13.07.18	Dwg Rev updated	KJ	
D	13.08.23	Dimensions revised	KJ	

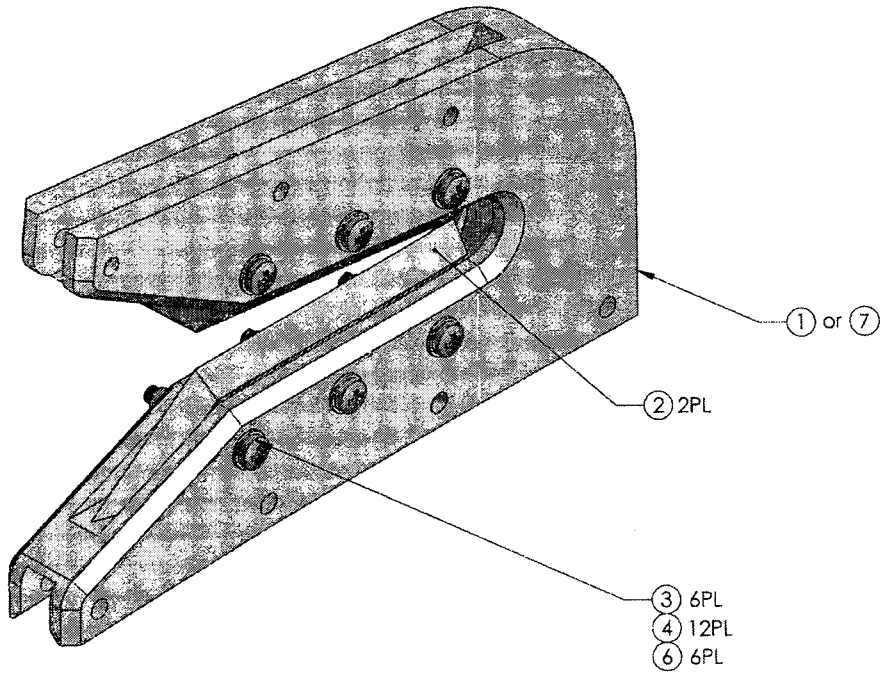
APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 04039				SHEET 1 OF 1
	DWG NO. 646.9700	REV: B	PREPARED BY D. PETERS	DATE: 08/09/13	EFFECT ON DWG ☒ INC. ☐ UNINC.
	DWG TITLE: CUTTER SUB ASSY				
	APPROVED BY: ENGR	MFG David Barbar	QC		EFF: NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE	REASON: MARKED INSPECTION DIMENSIONS			ECR: NONE	

105988 MCJ
13-08-29

DOCUMENTS EFFECTED: ☐ RFMS ☐ MDL ☐ INSTALL INSTRUC ☐ ICA ☐ BOM	CHANGE CATEGORY ☐ MAJOR ☒ MINOR	DER REVIEW REQUIRED ☐ YES ☒ NO

105988

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	LAST PROTOTYPE REVISION: PR7		HJC
HJC	INITIAL RELEASE	03/29/09	P. BRAVO
A	INCORPORATED ECN 02744, 03808, 03917	06/04/11	P. BRAVO
B	INCORPORATED ECN 03967	07/03/13	P. BRAVO
C	INCORPORATED ECN 04039	08/09/13	P. BRAVO



646.9701
or
646.9702

NOTES:

1. MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
2. FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER; PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
3. MATERIAL: AISI A2 TOOL STEEL CONDITION: ANNEALED POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
4. FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
7. APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
8. CUTTING EDGE INTENDED TO BE SHARP. DO NOT BREAK SHARP EDGE
9. ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

QTY 9702	QTY 9701	FIND #	PART #	DESCRIPTION	MAT'L	SPEC.
1		7	646.9712	BODY (U CHANNEL)	1	2 9
6	6	6	601.1541	LOCKNUT	MS21042L08	
A/R	A/R	5	601.2764	RTV, LOCTITE 598		
12	12	4	601.2764	WASHER	NAS1149FN832P	
6	6	3	601.2765	SCREW	MS27039-0819	
2	2	2	646.9711	BLADE	3	4
1	1	1	646.9710	BODY	1	2
X			646.9702	CUTTER SUB ASSY (U CHANNEL)		
	X		646.9701	CUTTER SUB ASSY		

PARTS LIST

NEXT ASSY [S]: 646.9600

ORIGINAL DATE (MO DA YR): 03-27-09
DRAWN BY: TONI OLER
H. ROLANO
DRAWING APPROVAL: P. BRAVO 05-29-09
CONTRACT NO

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
2 PLACE DECIMALS ± .01
3 PLACE DECIMALS ± .005
ANGLES ± .5°

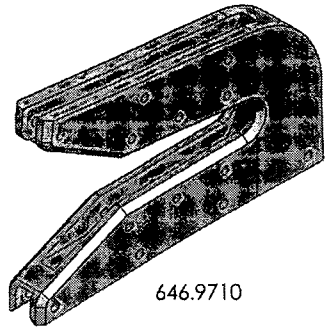
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

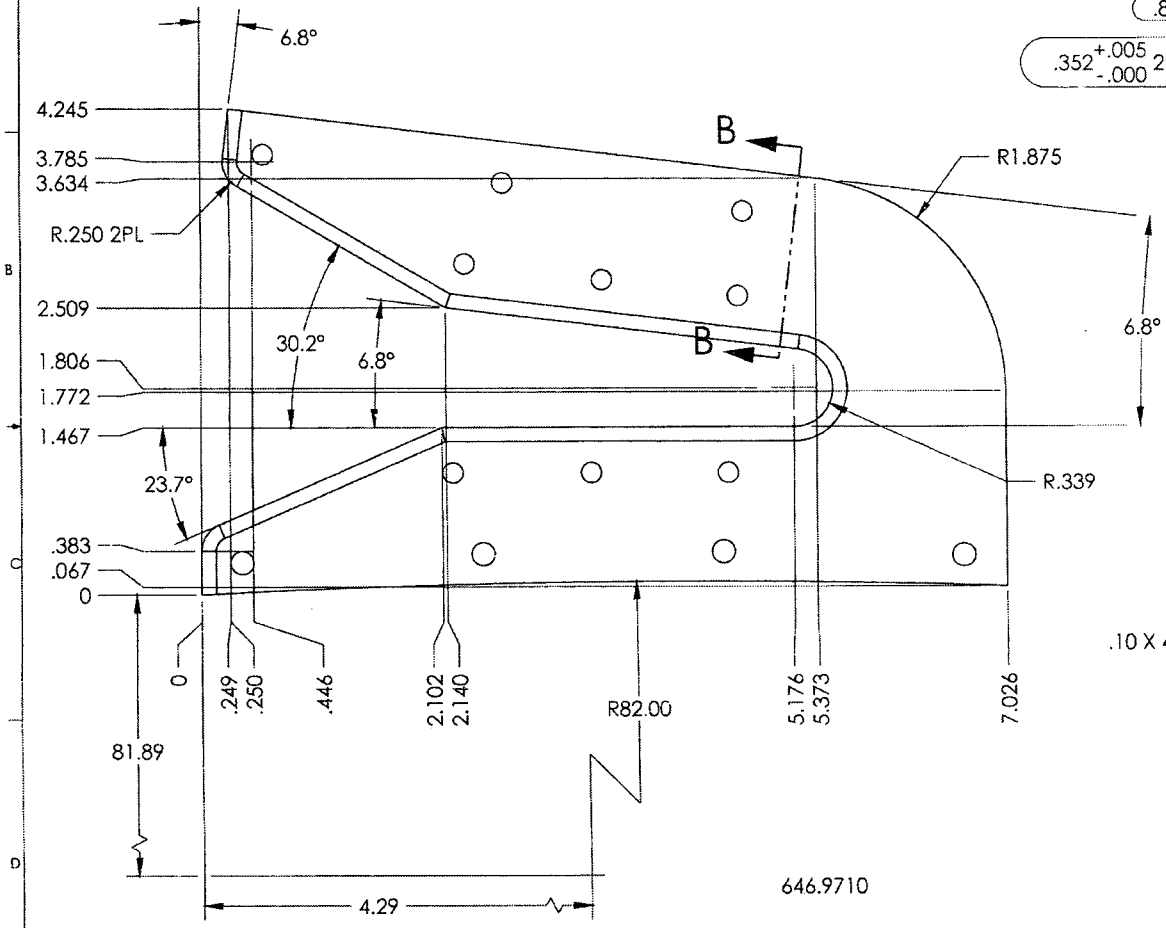
CUTTER SUB ASSY

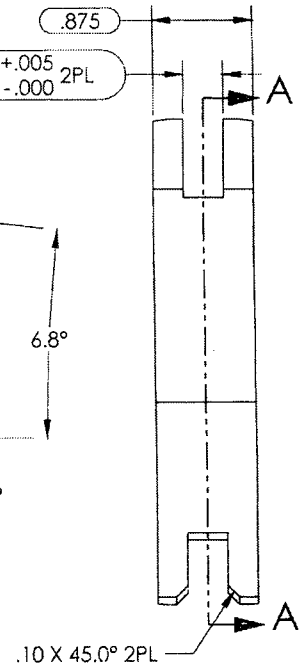
SIZE: B | CAGE CODE: 07MZ6 | DWG NO: 646.9700 | REV: C

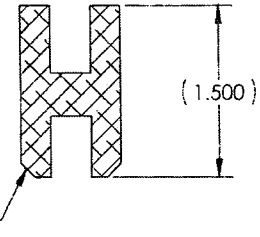
SCALE: NONE | SHEET 1 OF 6

105988









ORIGINAL DATE	05-27-09
DRAWN BY	M. ROSANO
CHECKED	P. BRAVO
DRAWING APPROVAL	P. BRAVO
CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ±1°	

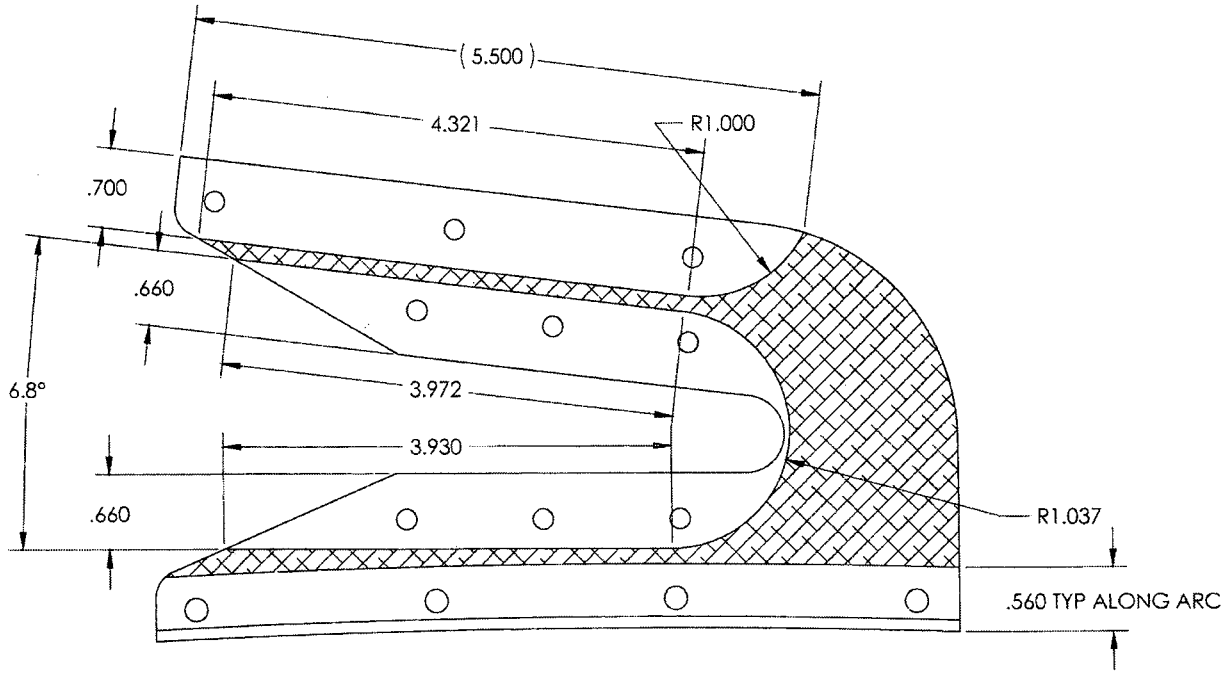
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

CUTTER SUB ASSY

SIZE	CAGE CODE	DWG NO.	REV
B	07MZ6	646.9700	C

SCALE: NONE SHEET 2 OF 6

105988



SECTION A-A 2/C6

646.9710

ORIGINAL DATE (MO DA YR)	05 29 07
DRAWN BY	K ROSARIO
CHECKED BY	P. BRAVO
DRAWING APPROVAL	P. BRAVO
QUALITY APPROVAL	
CONTRACT NO	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .010 ANGLES ± .5°	

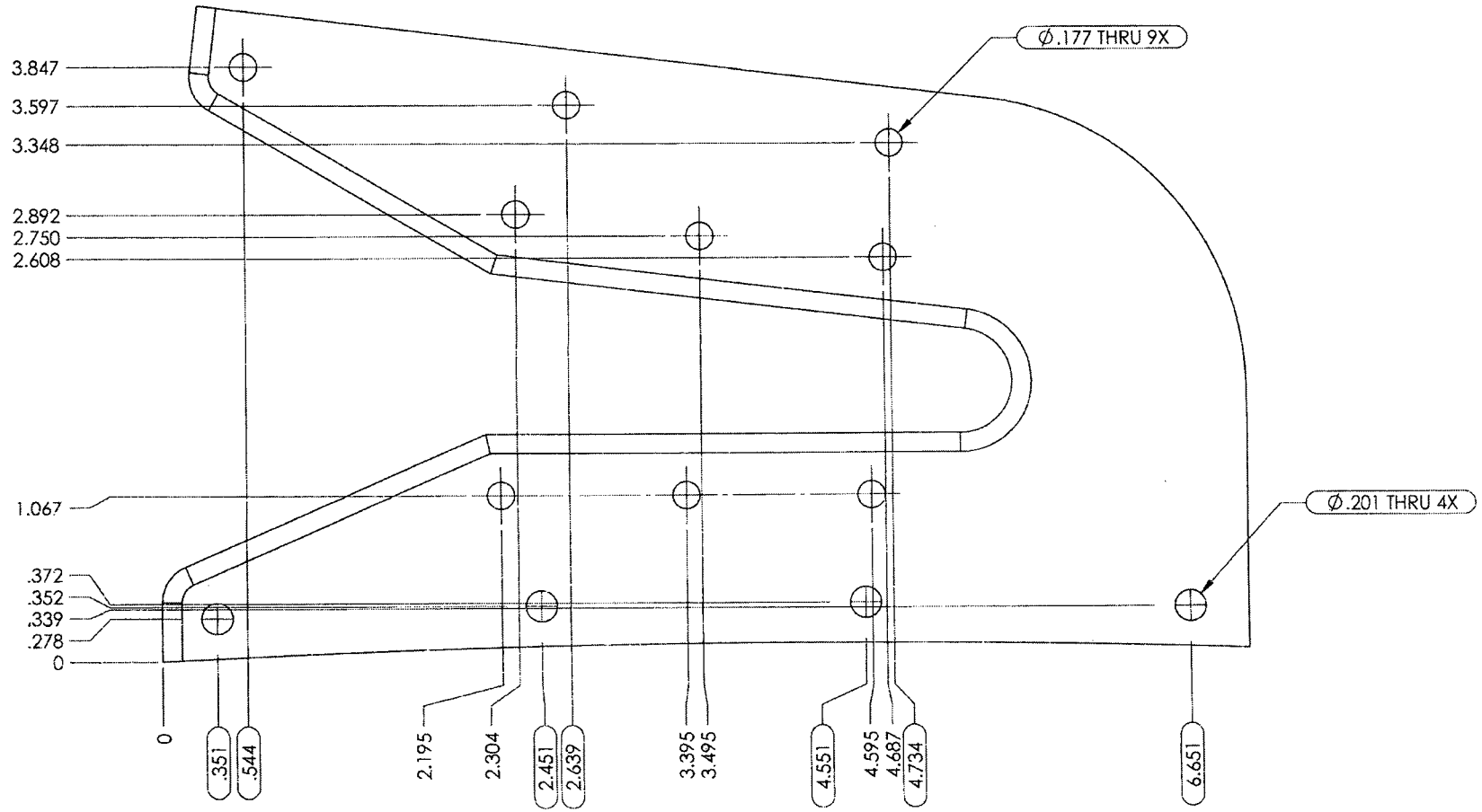
APICAL INDUSTRIES
2608 TEMPLE HEIGHTS DR.
OCEANSIDE, CA. 92056-3512 (760)724-5300

CUTTER SUB ASSY

SIZE	CAGE CODE	DWG. NO.	REV.
B	07N26	646.9700	C

SCALE NONE SHEET 3 OF 6

105988

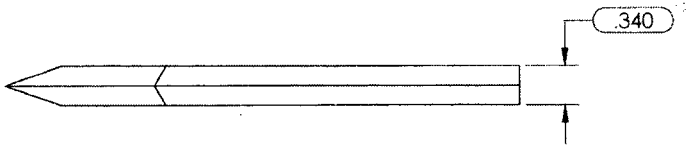


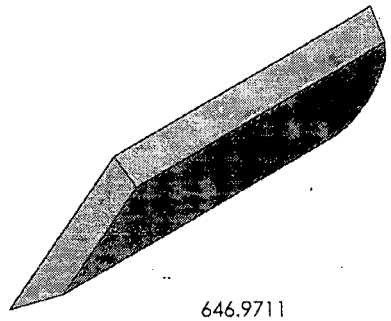
HOLE LOCATIONS +/- .002

646.9710

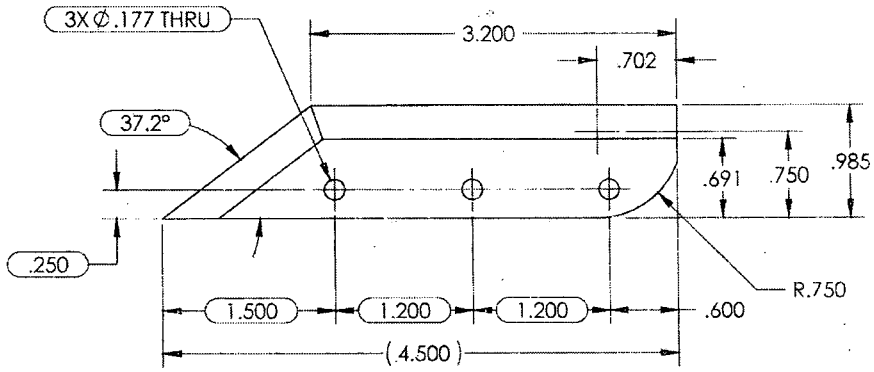
ORIGINAL DATE 05-27-09	APICAL INDUSTRIES
DRAWN BY R. ROSARIO	CHECKED P. BRAVO
DRAWING APPROVAL P. BRAVO 05-27-09	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300
CONTRACT NO	CUTTER SUB ASSY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± 5°	SIZE B · CAGE CODE 07M76 · DWG NO 646.9700 · REV C · SCALE NONE · SHEET 4 OF 6

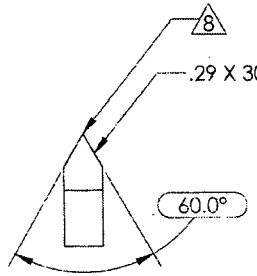
105988





646.9711

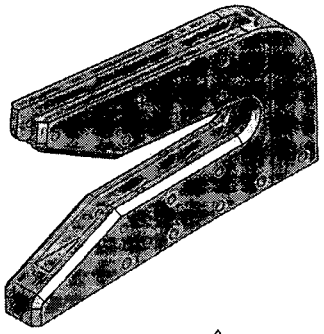




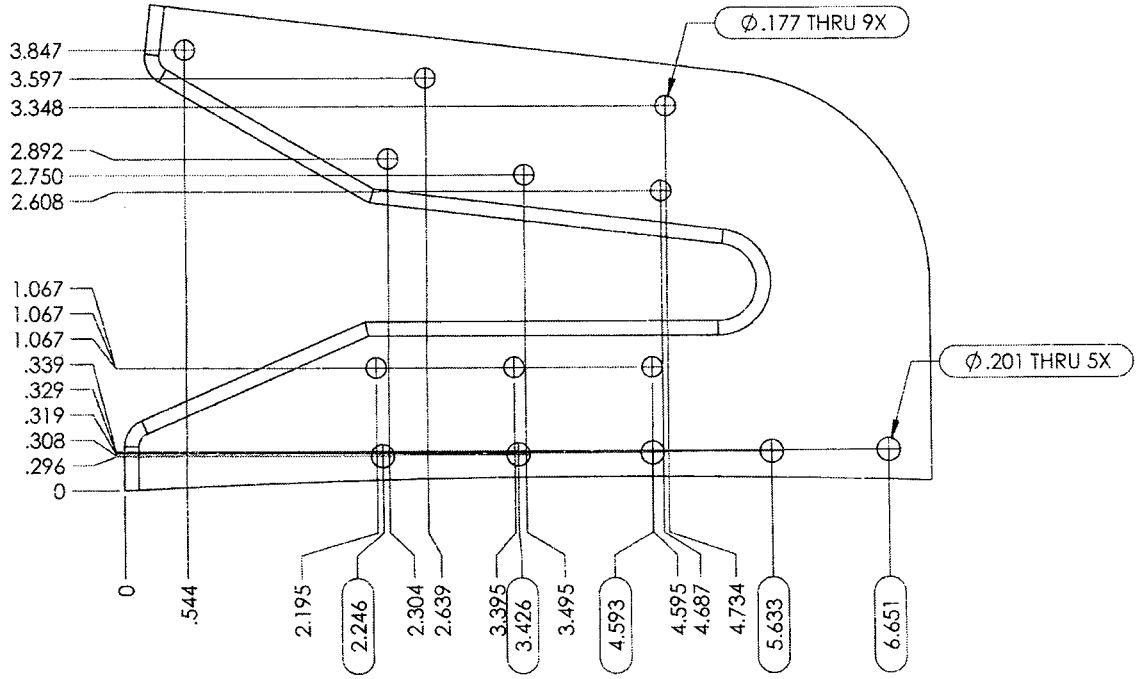
646.9711

ORIGINAL DATE (MO-DA-YR) 05-27-09	APICAL INDUSTRIES
DRAWN BY R. ROSANO	CHECKER P. BRAVO
DRAWING APPROVAL P. BRAVO 05-27-09	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300
CONTRACT NO.	CUTTER SUB ASSY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ± .5°	SIZE B · CAGE CODE 07MZ6 · DWG. NO. 646.9700 · REV C · SCALE NONE · SHEET 5 OF 6

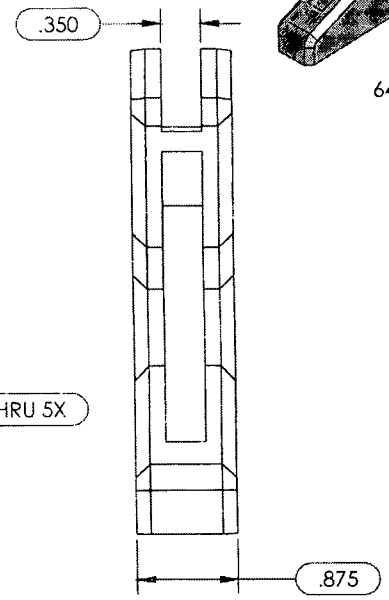
105988



646.9712 ⚠9



646.9712



ORIGINAL DATE (MO-DA-YR) 05-29-09		APICAL INDUSTRIES	
DRAWN BY: R. ROSANO	CHECKED: P. BRAVO	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL: P. BRAVO 05-29-09		CUTTER SUB ASSY	
CONTRACT NO.			
UNLESS OTHERWISE SPECIFIED BELOW MISSING ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.010 ANGLES ± .5°		SIZE: B	CAGE CODE: 07W26
		DWG. NO: 646.9700	REV: C
		SCALE: NONE	SHEET 6 OF 6

Jean-Luc Menard

From: Pablo Bravo
Sent: September-30-13 8:43 PM
To: Jean-Luc Menard
Subject: RE: DEVIATION ACCEPTABLE??

JL,
I think once they are painted they will be around .013" so I don't think the extra .004" will be critical. Please go ahead and use the parts.

Pablo

From: Jean-Luc Menard
Sent: Monday, September 30, 2013 5:46 AM
To: Pablo Bravo
Subject: RE: DEVIATION ACCEPTABLE??

Hi Pablo,
Checked the ones we have in stock,mesurring .009" with a feeler gauge.
The ones we have here messuring .019"(blades unpainted).
Let me know,
JL

From: Pablo Bravo
Sent: September-27-13 5:32 PM
To: Jean-Luc Menard
Subject: Re: DEVIATION ACCEPTABLE??

JL,

I think we can use the parts. Please check the clearance between the blades once they have been assembled and compare it to other cutter assemblies in stock.

Pablo

On Sep 27, 2013, at 5:46 AM, "Jean-Luc Menard" <jmenard@dartaero.com> wrote:

> Hi Pablo,
> Thanks for explaining,we are mesuring right on nominal (.250").
> What is happening is that the part is on size(.985") until we mill the the blade angle,the tool(chamfer tool) overhangs the part and takes away at the point.
> Let me know on what you decide,
> JL

From: Pablo Bravo
Sent: September-26-13 3:48 PM
To: Jean-Luc Menard
Subject: RE: DEVIATION ACCEPTABLE??

JL,

What is the distance between the holes and the bottom of the part? In the drawing it is .250 inches. The reason I ask is that if the blades are separated too much when they are installed (which could happen if the overall height is shorter than what's on the drawing) then not all of the cable strands will get cut as they go through the cutter. You would end up with some strands that get damaged, but are intact all the way through the blades. This ends up putting stress on the cutter body and causes the cable to fail in tension (where it is strongest) as opposed to being sheared. The design can handle one or two strands failing in tension, but if it gets past this then the cable won't get cut and the surrounding parts will fail. If we are on the high end of the tolerance on the distance between the hole and the bottom of the part (.255), then we might have too large of a gap.

Pablo

From: Jean-Luc Menard
Sent: Thursday, September 26, 2013 4:54 AM
To: Pablo Bravo
Subject: DEVIATION ACCEPTABLE??

Good Morning Pablo,
Here is another one,646.9711,total height is coming in at .973".
Is this acceptable?
THX
JL

<image002.png>

Jean-Luc Ménard
Production Engineering Supervisor

DART AEROSPACE
T 1 613 632-5200 > 227
F 1 613 632-5246
1 800 556- 4166
www.dartaerospace.com

<image003.png>

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
189961	**1**	**75438**

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
PO21577		A2	2013/10/4	FEDEX

QUANTITÉ Quantity	No. PIÈCE / NOM DE LA PIÈCE / DESCRIPTION DE LA PIÈCE Part No. / Part Name / Part Description	POIDS Weight
62	646.9711 (24) BLADE REFERENCE 104935 (16) 646.9711 BLADE REFERENCE 106350 (14) 646.9711 BLADE REFERENCE 105988 (8) 646.3013 BLADE REFERENCE 106687 CONTENANT: 1 BOÎTE DE CARTON	18,

QUANTITÉ EXPÉDIÉE /Quantity Shipped:	62
POIDS EXPÉDIÉ / Weight Shipped :	18,00

Signature: **Date:**

EXPÉDIÉ LE / Shipped On : **2013/10/09**

F-050-06 Rev. B

REV.
Metcor Inc.
560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8
Tél. 450 473-1884
Télécopieur/Fax administration 450 491-5498
Télécopieur/Fax production 450 491-6454

Rapport d'Inspection
Inspection Report

BON DE TRAVAIL order	CHARGEMENT load
100061 105301	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY ON K6A 1K7

LIVRÉ À / shipped to: 1
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY ON K6A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO21577		A2		

SPÉCIFICATIONS DU PROCÉDÉ
processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	13	58.0 - 60.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
62	18	646.9711 (24) BLADE REFERENCE 104935 (16) 646.9711 BLADE REFERENCE 106350 (14) 646.9711 BLADE REFERENCE 105988 (8) 646.3013 BLADE REFERENCE 106687 CONTENANT: 1 BOÎTE DE CARTON

COMMENTAIRES / comments

CERTIFIÉ par / Certified by: METCOR 6 DATE: 2013-10-09